

U.S. Department of
Homeland Security

United States
Coast Guard



Commandant
United States Coast Guard

2100 Second Street, S.W.
Washington, DC 20593-0001
Staff Symbol: G-ICA
Phone: (202) 366-4280
FAX: (202) 366-7124

5730

APR 20 2005

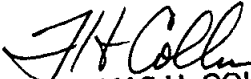
The Honorable Jerry Lewis
Chairman, Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

The FY05 DHS Conference Appropriations Report (108-774) directs the Coast Guard to report to the House and Senate Committees on Appropriations on its plan for maintenance of all its legacy assets and the entity responsible, whether contactor or Coast Guard, for such maintenance and estimated costs, including the costs associated with each legacy asset and future funding requests planned by the Coast Guard. The enclosed report responds to the congressional request.

An identical letter has been sent to Chairman Cochran. I am happy to answer any further questions you may have, or your staff may contact my House Liaison Office at (202) 225-4775.

Sincerely,


THOMAS H. COLLINS
Admiral, U.S. Coast Guard
Commandant

Encl: REPORT TO CONGRESS – "Coast Guard Maintenance of Legacy Assets Report"

U.S. Department of
Homeland Security

United States
Coast Guard



Commandant
United States Coast Guard

2100 Second Street, S.W.
Washington, DC 20593-0001
Staff Symbol: G-ICA
Phone: (202) 366-4280
FAX: (202) 366-7124

5730

APR 20 2005

The Honorable Thad Cochran
Chairman, Committee on Appropriations
U.S. Senate
Washington, DC 20510

Dear Mr. Chairman:

The FY05 DHS Conference Appropriations Report (108-774) directs the Coast Guard to report to the House and Senate Committees on Appropriations on its plan for maintenance of all its legacy assets and the entity responsible, whether contactor or Coast Guard, for such maintenance and estimated costs, including the costs associated with each legacy asset and future funding requests planned by the Coast Guard. The enclosed report responds to the congressional request.

An identical letter has been sent to Chairman Lewis. I am happy to answer any further questions you may have, or your staff may contact my Senate Liaison Office at (202) 224-2913.

Sincerely,

A handwritten signature in black ink, reading "TH Collins".

THOMAS H. COLLINS
Admiral, U.S. Coast Guard
Commandant

Encl: REPORT TO CONGRESS – "Coast Guard Maintenance of Legacy Assets Report"



U. S. DEPARTMENT OF HOMELAND SECURITY
UNITED STATES COAST GUARD



REPORT
ON
Maintenance of Legacy Assets

The Conference Report accompanying the FY05 Department of Homeland Security Appropriations directs requires the Coast Guard to report on its legacy assets:

The conferees direct the Coast Guard to report to the House and Senate Committees on Appropriations, within 30 days of enactment of this Act, on its plan for maintenance of all its legacy assets and the entity responsible, whether contractor or Coast Guard, for such maintenance and estimated costs, including the costs associated with each legacy asset and future funding requests planned by the Coast Guard. The Coast Guard is also directed to submit quarterly reports to the Committees on its actions with respect to this plan, beginning with the submission of the President's budget request for fiscal year 2006.

The Coast Guard is submitting this initial report on the status of its legacy asset maintenance program.

Executive Summary

The Coast Guard's greatest threat to mission performance is that legacy assets are aging, becoming technologically obsolete, and will require replacement and modernization in the future. Coast Guard ships, planes and shore facilities are essential to the Service's homeland security missions, providing a layered defense throughout ports, waterways, coastal regions and extending far offshore, as well as sustaining other mission area efforts such as search and rescue, law enforcement, environmental protection, waterways safety, and icebreaking.

The Coast Guard maintains its legacy aircraft and vessels using organic maintenance and repair infrastructure in conjunction with contracted depot-level maintenance activities. These operating expense (OE) funded maintenance efforts are complemented by periodic Acquisition, Construction and Improvement (AC&I) projects which either enhance asset capabilities and extend asset service lives, or replace assets. This legacy asset maintenance plan includes a brief description of the Service's base level OE-funded maintenance capabilities and processes for routine shore facilities, vessels and aircraft maintenance, but focuses primarily on the Coast Guard's legacy cutter and aircraft AC&I projects which represent the key components of the long-term maintenance plan.

Coast Guard legacy asset maintenance efforts are complemented by the Deepwater acquisition project, which focuses on vessels capable of sustained offshore operations and all Coast Guard operational aircraft. The Coast Guard recognized the need to replace its Deepwater legacy assets in the late 1990s and developed the Integrated Deepwater Program to replace and/or modernize these legacy assets. Although the original Deepwater program called for a modest budget for maintaining the legacy fleet of Coast Guard assets until the new equipment was delivered, the significant increase in overall service effort with the post-9/11 focus on homeland security combined with underestimated maintenance requirements has greatly accelerated the deterioration of legacy assets, further reducing Coast Guard readiness. As a result, more funding than originally planned has been spent to properly sustain and enhance the Coast Guard's legacy Deepwater assets.

This report reflects legacy cutter and aviation AC&I projects that the Coast Guard has included in the FY2006 budget request and anticipates requesting in future budget submissions. In addition to continuing fiscal year 2005 legacy initiatives such as HH-60J avionics modernization, HC-130H APS 137 surface search radar replacement, HH-65 re-engining and the 210'/270' mission effectiveness project, this report also discusses additional legacy asset sustainment and enhancement projects that the Coast Guard has identified as necessary for its continued operations.

Coast Guard Maintenance Infrastructure and Processes

Coast Guard Personnel. Coast Guard men and women are well trained to maintain and continually upgrade Coast Guard aviation, surface, and shore infrastructure assets. A mature project planning and execution program exists within the Coast Guard to provide routine unit-level and depot-level maintenance. Where expertise or infrastructure doesn't exist organically within the service, the Coast Guard uses contracted resources to provide the requisite maintenance support. Maintaining a high proficiency level amongst the Coast Guard's "maintainers" is critical to the long-term health of the service. One of the service's guiding principles is to maintain a core competency of maintenance expertise amongst Coast Guard (military and civilian) members to ensure service readiness, especially during periods of national emergency.

Coast Guard Maintenance Facilities. Coast Guard depot-level repair facilities such as the Aircraft Repair and Supply Center (ARSC), the service's only intermediate and depot-level aircraft repair facility, and the Coast Guard Yard, the service's only shipyard, plan their workloads to accommodate both scheduled maintenance and to make improvements to Coast Guard assets. For example, the OE funded Programmed Depot-level Maintenance (PDM) program at ARSC brings in every Coast Guard rotary wing aircraft for planned maintenance on a four-year cycle. As seen in the photos to the right, the "routine" aircraft maintenance is extensive, involving stripping each aircraft to the "green" frame and rebuilding it. About 25 percent of the time factored into each aircraft's maintenance project schedule is available for fleet-wide upgrades. The PDM process allows for easy integration of upgrades because the aircraft are rebuilt from the ground up. In the past, these upgrades have included the HU-25 avionics and sensor upgrade, the HH-65 rewiring and A to B conversion projects and the HH-60 main support beam replacement. Thus many of the aviation projects identified as either sustainment or enhancement in this report can be accommodated using existing Coast Guard aviation repair infrastructure. In order to sustain an adequate level of asset support to the Coast Guard in the long term, both ARSC and the Yard must have an adequate stream of work to sustain their workforces and to remain cost effective.



Coast Guard repair centers specialize in adapting to changing conditions. Particularly in the post-9/11 world, these government-owned assets are used effectively to respond quickly and professionally to rapidly changing priorities and needs. The Yard's ability to complete major hull maintenance projects on badly deteriorated 110-foot patrol boats is an example of this adaptability. The Coast Guard Yard provides critical corporate expertise and experience with major maintenance projects on major Coast Guard cutters. This flexibility makes these repair centers particularly suited to conduct sustainment and enhancement projects, where unforeseen conditions and changing work parameters can be accommodated with a minimum of cost or schedule impact.

Contractor Capabilities. Where expertise or infrastructure does not exist organically within the service, the Coast Guard uses contracted resources to provide the requisite support. The Coast Guard routinely uses ship repair facilities/contractors to complete depot level maintenance via competitive contracts. In the aviation community, because ARSC does not have the capacity to conduct Programmed Depot-level Maintenance (PDM) on the Service's HC-130Hs, contractor support is required.

Over the life of the Deepwater acquisition program, most of the Coast Guard's AC&I level aircraft and vessel support will be the responsibility of the IDS contractor, currently Integrated Coast Guard Systems (ICGS). The Coast Guard is in partnership with ICGS to sustain and enhance Deepwater legacy assets, particularly those that will remain in service under the Integrated Deepwater Systems (IDS) plan. Cutters and aircraft that are retained in the IDS will receive both major maintenance work designed to extend the asset's service life, and enhancements to improve the asset's performance and provide complete interoperability with other IDS assets. For this reason, the detailed plan described in this report includes both sustainment and enhancement work on legacy assets.

As the Deepwater *System Integrator*, ICGS is responsible for operational effectiveness, integration of assets, and logistics for those assets that will be retained in the IDS. ICGS expertise lies in taking the many elements that make up the Coast Guard's legacy systems and integrating them with newly acquired IDS assets into a single effective system of systems. This requires detailed involvement in individual project design and follow-on logistical support. The Coast Guard's legacy asset maintenance plan reflects an adaptable approach to engaging ICGS in legacy asset sustainment projects. For some legacy asset projects, ICGS will provide the integrated design, while the Coast Guard Yard and ARSC will be responsible for execution. For executing projects beyond the capability or capacity of the service's organic support organization, the Coast Guard will outsource the work either through ICGS or separate contract providers.

Maintenance Project Programming and Budgeting

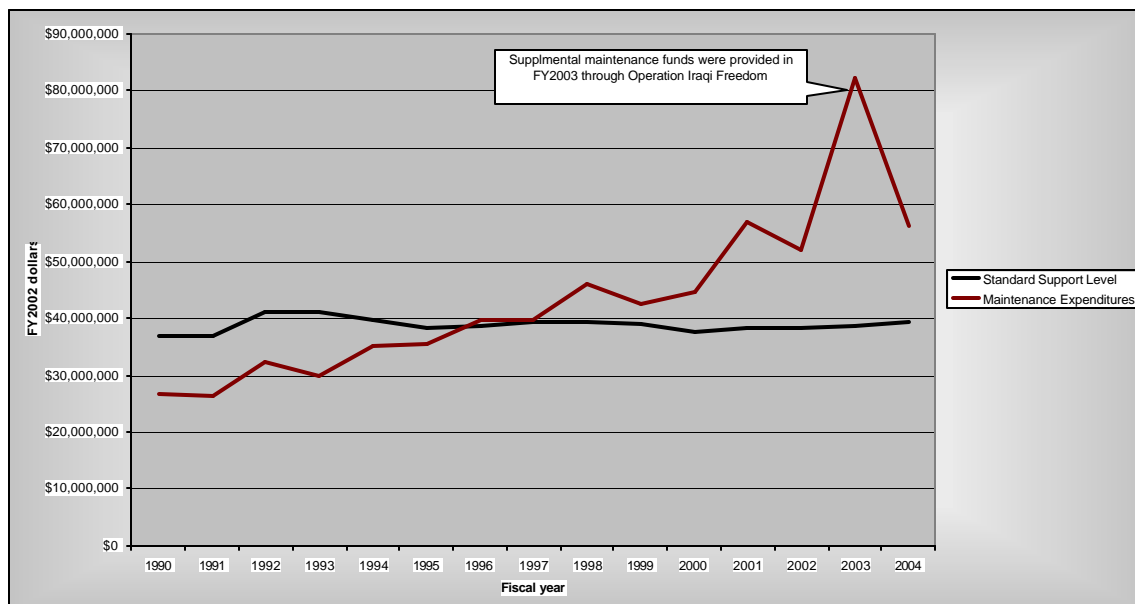
Standard Support Level (SSL). Coast Guard cutters are maintained with a mixture of AC&I and OE funding. The Coast Guard manages its base OE legacy asset maintenance funding using standard support levels (SSLs) established for each class of asset at the time of asset acquisition and adjusted annually for inflation and on-budget adjustments. The SSL represents the funds budgeted for depot level maintenance support for each class of vessels. Actual expenditures vary from the SSL as the Coast Guard's maintenance managers shift resources to deal with their most immediate fleet maintenance challenges, often using funds from another vessel's SSL or outside

sources to ensure availability of the most critical Coast Guard assets. The matrix below states the FY05 total SSL provided for each Coast Guard cutter class.

Vessel Classes (Number of Hulls)	FY05 Standard Support Level (SSL)
65' WLI (3)	\$267,576
65' WLR (6)	\$1,449,174
65' WYTL (11)	\$628,392
75' WLIC (8)	\$2,302,995
75' WLR (12)	\$2,148,482
87' CPB (56)	\$9,456,305
100' WLI (2)	\$379,530
100' WLIC (1)	\$288,259
110'/123' WPB (41/8)	\$11,320,140
140' WTGB (9)	\$2,475,388
160' WLIC (4)	\$876,816
175' WLM (14)	\$4,404,873
180' WLB (1)	\$395,149
180' WIX (1)	\$395,149
210' WMEC (14)	\$7,675,970
213' WMEC (1)	\$624,452
225' WLB (16)	\$9,380,136
230' WMEC (1)	\$531,430
270' WMEC (13)	\$8,089,426
290' WAGB (1)	\$1,555,112
282' WMEC (1)	\$833,150
295' WIX (1)	\$752,823
378' WHEC (12)	\$12,835,745
399' WAGB (2)	\$7,775,559
420' WAGB (1)	\$4,109,938

FY05 OE Standard Support Level Funding Per Cutter Class

Because of the age of the Coast Guard's Deepwater assets, and because of the additional use of these assets since the terrorist attacks of 9/11/2001, Deepwater assets have consumed more than their budgeted SSL maintenance funding. The following table illustrates the actual Deepwater legacy asset maintenance expenditures, as compared to the SSL funding budgeted for Deepwater class vessels for fiscal years 1990 through 2004.



*Budgeted Standard Support Level and Actual Maintenance Expenditures for Deepwater Cutters
(110 WPB, 210 WMEC, 270 WMEC, 378 WHEC)*

Acquisitions, Construction and Improvement (AC&I) vs. OE Funding/SSL. Depending on the type of maintenance project, funds can come from the Coast Guard's Operating Expenses (OE) appropriation account, or an Acquisitions, Construction and Improvement appropriation account (AC&I). The Coast Guard's Financial Resource Management Manual provides clear thresholds for AC&I initiatives. Projects not over the thresholds listed in the following chart are categorized as OE maintenance projects.

Category	Acquisition or Construction	Improvement, renovation, upgrade, replacement or alteration of an item or asset
Vessels	Costs Over \$1M per vessel <u>or</u> \$8M per project/cutter class/boat class.	Costs over \$1M per vessel <u>and</u> \$8M per project/cutter class; boat class <u>or</u> \$10M total project cost.
Aircraft	Any acquisition <u>or</u> construction of an aircraft.	Costs over \$2M per aircraft <u>or</u> \$10M total project cost.
Other Equipment; Hardware & Software	Costs over \$1M per usable segment or item <u>or</u> \$10M total project cost.	Costs over \$1M per usable segment or item <u>or</u> \$10M total project cost.
Shore/ATON	Any acquisition of land (including improvements), and construction of housing <u>or</u> \$500K total project cost (\$25K per new ATON facility).	Costs over \$25K per housing unit or ATON facility <u>or</u> \$500K total project cost.

There is a direct link between the Coast Guard's AC&I sustainment and enhancement efforts and the Service's OE maintenance expenditures. Deferred recapitalization reduces readiness and increases OE maintenance costs. While AC&I investments are more costly, in the short term, than rising OE maintenance costs, recapitalization provides for more reliable assets that can be maintained within their existing base maintenance budget. The above graph illustrates the rise of Deepwater legacy asset total ownership costs as a result of deferred recapitalization.

Maintenance Planning Process. The Coast Guard’s maintenance planning process involves every level of the organization including: (1) field level input provided in casualty, mishap and annual unit engineering reports; (2) engineering/support provider input in the form of regional maintenance data/trend analysis, observations of experienced support/engineering personnel and prioritization of issues/needs; and (3) Coast Guard Headquarters involvement in the collation of CG-wide data/trend analysis, input from the Atlantic and Pacific Area Commanders and their support providers, and development of corrective strategies.

To address the Coast Guard’s most significant legacy asset engineering needs, the service maintains a Systems Integrated Near Term Support Strategy (SINTSS). The SINTSS serves as an unconstrained, non-prioritized list of potential AC&I projects needed to sustain existing capabilities provided by aging aviation, vessel, shore and C4ISR assets. It is a planning tool used to document “capability gaps”, potential corrective strategies and order of magnitude cost estimates. It provides Coast Guard managers with the information needed to develop strategies for sustaining existing assets while simultaneously planning for replacement platforms.

The SINTSS supports near- and intermediate-term maintenance decisions linked to the Coast Guard budget development process. The SINTSS is the point of entry for the annual budget build process for AC&I projects, provides an overview of 5-Year AC&I project requirements and associated OE follow-on costs, provides the Coast Guard’s Systems Management Board (SMB) with the information needed to make AC&I planning and budget decisions, provides linkage to the annual Business Planning Process and supports the Commandant’s capital investment plan.

The projects described in the next section have been vetted through the Coast Guard’s maintenance planning process and have been included in intermediate and long term planning documents.

The legacy asset maintenance plan is provided in two parts: Deepwater and non-Deepwater legacy assets.

Deepwater Legacy Asset Maintenance Plan

Deepwater Legacy Vessel Maintenance.

For larger cutters that will not be part of the final IDS force structure, the Deepwater program treats the maintenance of legacy vessels as non-contractor, government-incurred work, meaning that the oversight, contracting, and hands-on maintenance work on legacy vessels is primarily done by Coast Guard personnel at either the Coast Guard Yard or at Coast Guard-contracted facilities throughout the country. As the system integrator, ICGS has upgraded legacy cutters by designing C4ISR upgrades to achieve integration with new IDS assets.

ICGS' Role. The IDS relies on legacy vessels until they are replaced by newly-delivered vessels. ICGS' role is to ensure that legacy assets can continue to achieve operational effectiveness at the lowest total ownership cost. To do this, ICGS relies on the Coast Guard to maintain the assets while it enhances them with refreshed sensors and technologies as appropriate.

Medium (WMEC) and High (WHEC) Endurance Cutters. The Coast Guard's medium and high endurance cutters now range from 13 to 62 years of age. The bulk of the Coast Guard's deepwater fleet consists of these 210', 270' and 378' cutters. The 14 remaining 210's were built between 1964 and 1969; 12 378's between 1967 and 1972; and 13 270's between 1983 and 1991. Due to the age and increased use of these cutters since the terrorist attacks of 9/11/2001, the Coast Guard has experienced an increasing degree of subsystem failures. To address these issues the Coast Guard plans to implement a Mission Effectiveness Project (MEP) on its 270' and 210' Medium Endurance Cutters, which will enable these cutters to serve for another decade until they can be relieved by their IDS counterparts (the Maritime Security Cutter Medium). The work on the first two cutters starts in FY05 and includes \$12.5M in AC&I funded service life extension projects (\$7.5M for CGC TAMPA, Portsmouth VA, \$5M for CGC DEPENDABLE, Cape May NJ). These projects will be completed by the Coast Guard Yard in Baltimore, MD. MEP projects include major engineering subsystem replacements including evaporator, sewage system, gyrocompass as well as other auxiliary systems. Since they will be the first major cutter to be replaced, major engineering subsystem replacements are not currently scheduled on WHECs.

The following table shows the planned AC&I projects, the responsible entity, and the total estimated project cost.

Cutter Projects	Responsible Entity	Estimated Cost (\$M)
210' Mission Effectiveness Project	USCG	\$98.5*
270' Mission Effectiveness Project	USCG	\$193.5**

* Cost to conduct MEP on 14 210' WMEC's

** Cost to conduct MEP on 13 270' WMEC's

Patrol Boats. The Coast Guard's 49 110' Island Class Patrol Boats (WPBs) are a modification of a highly successful British-designed patrol boat. With excellent range and sea-keeping capabilities, the Island Class, all named after U.S. islands, replaced the older 95-foot Cape-class patrol boats. These cutters were commissioned between 1986 and 1992 with the expectation that they would operate for a 15-year service life.

The Deepwater acquisition includes the conversion of several of these 110' WPBs into 123' WPBs. Many subsystems of the Island Class cutters are nearing the end of their economic service life and the conversion does not fully address mechanical and electrical equipment replacement needs, so the Coast Guard is developing a plan for addressing potential subsystem replacements to keep these cutters in service another 10-15 years.

SSL data highlights the maintenance concerns with the 110' WPBs and the Coast Guard's response to them. On average, the Coast Guard has had to expend an additional \$145,000 per year in maintenance funding over the SSL for each 110' WPBs since FY99. In FY03, the actual SSL expenditure was \$573K per hull, costing an additional \$17.1M for the class.

Because existing 110' WPBs that are not converted to 123' WPBs will not be a part of the IDS final solution, the Coast Guard is primarily responsible for sustaining these cutters until they are replaced by the Deepwater solution Maritime Patrol Coastal (WPC). To ensure the 110' WPB fleet is able to operate within the Deepwater program, its C4ISR upgrades and other subsystems that require integration with IDS elements will also be coordinated by ICGS. The maintenance of 123' patrol boats is a joint ICGS/Coast Guard responsibility in accordance with the existing contract.

There are no AC&I projects currently scheduled for the remaining 110' WPBs, but planning efforts have begun to address their aging mechanical and electrical subsystems. Any changes to the WPB sustainment plan will be reflected in updates to this report.

Rotary Wing Aircraft.

The Coast Guard owns two classes of helicopter, the HH-65 Dolphin and the HH-60 Jayhawk. To maintain existing operations, only eleven of the Coast Guard's 95 HH-65 helicopters and seven of the 41 HH-60 helicopters can be scheduled for removal from service at any given time. These HH-65's and HH-60's are continuously rotated out of operational service to allow the Coast Guard's Aircraft Repair and Supply Center (ARSC) to complete critical, OE level, programmed depot maintenance (PDM), a similar concept to the surface asset SSL maintenance program.

Base OE PDM funding levels for the Coast Guard's rotary wing aircraft fleet are shown in the following table. ARSC schedules and provides Coast Guard rotary wing aircraft PDM according to established Service standards. The purpose of the aircraft PDM program is to (1) provide periodic inspection of areas of an aircraft which are not accessible without extensive disassembly, (2) perform heavy maintenance which is beyond the capability of operating units and (3) incorporate changes and modifications which are too extensive to perform at the operating unit level.

Rotary Wing Aircraft	FY05 Budgeted PDM
HH-65 (95 aircraft)	\$58,105,650.00
HH-60J (41 aircraft)	\$36,613,578.00

In addition to the PDM program, the Coast Guard plans to modernize its rotary-wing aircraft, as presented in the revised Deepwater implementation plan, and has already engaged ICGS to replace the engines of the HH-65 helicopters as part of this process. These upgrades will ensure the helicopter fleet is capable of meeting the Coast Guard's post-9/11 requirements.

To mitigate operational impacts, some of the major project work to modernize the HH65's and HH-60's will be done as part of the PDM processes, and ICGS will be responsible for developing and designing the technologies and systems that will be installed on the HH-65 and HH-60 helicopters to integrate them into the Deepwater system. ARSC will carry out the ICGS designs, up to the limit of their capacity. Where a project scope exceeds ARSC capacity, ICGS will arrange for portions or all of the work to be done at other qualified facilities. The final scope of ICGS' role in rotary wing sustainment and enhancement projects will vary depending upon the nature and extent of the project.

HH-65 Dolphin Helicopter. The Coast Guard has 95 twin-engine, short-range recovery HH-65 helicopters that entered service in 1984. There are currently 84 operational HH-65s located at 17 air stations throughout the United States. The HH-65 helicopter is the Coast Guard's primary aviation asset for cutter-based operations and performs nearly all of the Coast Guard's essential missions including ports, waterways & coastal security (PWCS), drug interdiction, migrant interdiction, defense readiness, search and rescue (SAR), ice operations, living marine resources, and marine environmental protection. In addition to 84 operational aircraft there are 11 aircraft that are undergoing the maintenance PDM cycle and one bare airframe is used for prototyping and operational testing. HH-65s are located at Coast Guard Air Stations and Air Facilities in Traverse City, MI; Barbers Point, HI; Borinquen, PR; Atlantic City, NJ; Corpus Christi, TX; Detroit, MI; Houston, TX; Humboldt Bay, CA; Los Angeles, CA; Miami, FL; Mobile, AL; New Orleans, LA; North Bend, OR; San Francisco, CA; Port Angeles, WA; Kodiak, AK; Savannah, GA; Charleston, SC; Newport, OR; Muskegon, MI; and Waukegan, IL.

Re-engining the HH-65 fleet is the highest legacy asset priority in the Coast Guard. The current 20-year-old engine configuration is suffering from an alarming increase in power loss. This safety and reliability concern has required the implementation of operational restrictions on the aircraft and has reduced their operational readiness and flexibility. In FY04 the Coast Guard tasked ICGS with accelerating the re-engining element of the MCH upgrade project. The goal is to have all 84 operational HH-65s re-engined by February 2007.

As the HH-65 fleet approaches the 20-year mark, other major engineering and sensor subsystems are impacting readiness. The Deepwater Multi-Mission Cutter Helicopter (MCH) upgrade project, an important component of the Deepwater recapitalization project, is the vehicle by which the service life of the HH-65 will be extended and these subsystems enhanced to install the technologies needed to meet Deepwater system requirements. As discussed above, these

projects are presented to illustrate the Coast Guard's plan to use its existing legacy assets as part of the final Deepwater solution.

The table below summarizes the MCH upgrade plan. There are several critical AC&I projects identified for this aircraft to ensure its future as part of the IDS solution. The level of ICGS involvement will vary depending on the project. Airborne use-of-force (AUF), currently deployed aboard the Coast Guard's HITRON squadron, has become a critical element of the Coast Guard's counterdrug effort. In addition, HH-65 AUF considerably increases the Coast Guard's capacity for responding to homeland security threats.

The re-engining of the HH-65 presents an immediate safety and reliability issue for the Coast Guard. This project proceeded ahead of the remainder of the MCH conversion project.

HH-65 Projects	Responsible Entity	Total Estimated Cost (\$M)*
MCH Conversion w/AUF	USCG/ICGS	
Re-engining	USCG/ICGS	\$349
AUF (Includes FLIR & SATCOM)	USCG/ICGS	\$52
Radar Replacement	USCG/ICGS	\$95
Tail Rotor Replacement	USCG/ICGS	\$15
Landing Gear Replacement	USCG/ICGS	\$5
Fuel Cell	USCG/ICGS	\$86

* Costs shown are for fleet of 95 HH-65 helicopters

HH-60 Jayhawk Helicopter. The HH-60J is a medium-range recovery helicopter used primarily for the Coast Guard's PWCS, drug interdiction, migrant interdiction, defense readiness, SAR, ice operations, living marine resources, and marine environmental protection missions. Manufactured by Sikorsky, there are currently 34 operational aircraft and 7 support (PDM) aircraft for a total of 41. With its two T700-GE-401C engines, the Jayhawk can fly 300 miles offshore, remain on scene 45 minutes, hoist six people onboard, and return to point of origin with a safe fuel reserve. HH-60Js are located at Coast Guard Air Stations in Mobile, AL; Kodiak, AK; Sitka, AK; San Diego, CA; Clearwater, FL; Cape Cod, MA; Elizabeth City, NC; Cordova, AK; and Astoria, OR.

The revised Deepwater implementation plan, which was delivered to the Congress on March 25, 2005, identifies a recapitalized HH-60 helicopter as the currently-planned Medium Range Recovery Helicopter (MRR). The table below summarizes the HH-60 recapitalization plan to convert the current HH-60 fleet to MRR capability. The level of ICGS involvement will vary depending on the project.

The HH-60 Avionics replacement project is already in the production stage as a joint USCG/DoD effort. The avionics of the HH-60 fleet are becoming obsolete, and experiencing an increasing failure rate. For this reason, the Coast Guard will continue with the HH-60 avionics replacement project, and ICGS will review current designs to provide necessary integration with future IDS systems.

The following table identifies projects necessary to recapitalize the HH-60 helicopter fleet, as presented in the revised Deepwater implementation plan..

HH-60 Projects	Responsible Entity*	Total Estimated Cost (\$M)*
HH-60 Avionics	USCG	\$121
HH-60 Radar	USCG/ICGS	\$41
HH-60 Engine Upgrades	USCG	\$34
HH-60 Wiring Sustainment/SLEP	USCG/ICGS	\$17
Airborne Use Of Force	USCG	\$23
IDS conversion	USCG/ICGS	\$180

* Costs shown are for fleet of 41 HH-60's

MH-68A Stingray. The Coast Guard leases eight Augusta-Bell MH-68A helicopters for use in the helicopter interdiction squadron. As these are leased aircraft, there is no major maintenance planned for these helicopters.

Fixed Wing Aircraft.

There are three legacy fixed wing assets: the new C-130J, the HC-130H, and the HU-25. Like rotary winged aircraft, legacy asset fixed wing aircraft maintenance is also managed through a PDM cycle. The PDM budget for each of the three fixed wing assets is presented in the following table. PDM for the HU-25 is performed at ARSC in the same manner as the Coast Guard's rotary wing aircraft. Because ARSC does not have the capacity to conduct PDM on the Service's HC-130Hs, contractor support is required. As new assets, the HC-130J's do not yet require PDM level maintenance.

Fixed Wing Aircraft	FY05 Budgeted PDM
HU-25 (17 aircraft)	\$25,190,994.00
C-130H (27 aircraft)	\$53,644,779.00
C-130J (6 aircraft)	\$0.00

In addition to the PDM program, the Coast Guard plans to modernize its HC-130Hs, as presented in the revised Deepwater implementation plan. These upgrades will ensure the HC-130H fleet is capable of meeting the Coast Guard's post-9/11 requirements.

Similar to the work plan for rotary-wing aircraft, to mitigate operational impacts, some of the major project work that will modernize the HC-130H's will be done as part of the PDM processes. For these projects, ICGS will be responsible for developing and designing the technologies and systems that will be installed on the aircraft to integrate them into the Deepwater system. ARSC will carry out the ICGS designs, up to the limit of their capacity. Where a project scope exceeds ARSC capacity, ICGS will arrange for portions or all of the work to be done at other qualified facilities. The final scope of ICGS' role in fixed wing sustainment and enhancement projects will vary depending upon the nature and extent of the project.

HC-130H "Hercules." The HC-130H is a long-range, fixed-wing, multi-mission aircraft used for SAR, drug interdiction, migrant interdiction, and defense readiness LRMPA missions in addition to performing essential logistics operations. The HC-130H aircraft began entering Coast Guard

service in 1978. Manufactured by Lockheed, there are currently 23 operational HC-130H aircraft, with 4 support (PDM) aircraft, for a total of 27. The Coast Guard has HC-130Hs located at Coast Guard air stations in Sacramento, CA; Clearwater, FL; Elizabeth City, NC; Kodiak, AK; and Barbers Point, HI.

The service currently uses a combination of contractors as the provider for HC-130H PDM level maintenance. This contracted PDM effort is being done wholly outside of the Deepwater project. This work represents approximately \$29 million in the Coast Guard's FY05 budget.

As noted in the table below, there are several critical AC&I projects identified for this aircraft to ensure its future as part of the IDS solution. The ICGS missionization of the Coast Guard's newly acquired C-130Js may create an opportunity for the Coast Guard to temporarily remove HC-130Hs from service, outside of the PDM process, for the completion of significant AC&I projects. ICGS will be responsible for developing the system architecture essential to ensuring the HC-130H's integration within the IDS solution. Once this development is complete, the Coast Guard and ICGS will tailor its partnership relationship to accomplish this work. Since the Coast Guard does not have the funds to increase hangar space for internal C-130 PDM, ICGS will likely serve as both the designer and executor for any significant service life extension programs or technology updates.

The Coast Guard's FY2005 Deepwater budget includes funds to start replacement of the HC-130H's APS 137 search radar. Several of the current units are inoperable, replacement parts are no longer available, and the Navy plans to cease to support this system in 2007. While the Coast Guard will work closely with ICGS to ensure consistency in system architecture is maintained with the HC-130J, this project will proceed in advance of other IDS technology upgrades to ensure that the operational readiness of these aircraft is maintained.

HC-130H Projects	Responsible Entity	Total Estimated Cost (\$M)
APS 137 Search Radar Replacement	USCG	\$75*
Weather Radar Replacement	USCG/ICGS	\$27*
Military Satellite Comms (MILSATCOM)	USCG/ICGS	\$11*
Avionics Modernization & Rewire	USCG/ICGS	\$144**
LRS Conversion	USCG/ICGS	\$88**

* Costs shown are for the fleet of 27 C-130H's

** LRS Conversions and modernization done on 16 C-130H's

HU-25 "Guardian." The HU-25 is medium-range, fixed-wing, multi-mission aircraft used for SAR, drug interdiction, migrant interdiction, fisheries law enforcement and defense readiness missions in addition to performing essential logistics operations. Manufactured by Falcon Jet Corporation (a subsidiary of Dassault-Breguet Aviation) the HU-25 began service with the Coast Guard in 1982. There are currently 17 operational aircraft, with 6 support (PDM) aircraft, for a total of 23. HU-25s are stationed at Coast Guard air stations in Cape Cod, MA; Mobile, AL; Corpus Christi, TX; and Miami, FL. The HU-25 is being replaced by the EADS CASA CN-235M, therefore there are no AC&I projects planned for the HU-25.

Non-Deepwater Legacy Asset Maintenance Plan

420' Icebreaker (WAGB). The Coast Guard has one 420' Icebreaker, the Coast Guard Cutter HEALY (WAGB - 20). HEALY was delivered to the Coast Guard in 1999. HEALY is designed to conduct a wide range of scientific research activities, break 4 ½ feet of ice continuously at three knots and can operate in temperatures as low as -50 degrees F. HEALY is also a capable platform for supporting other potential missions in the polar regions, including logistics, search and rescue, ship escort, environmental protection, and enforcement of laws and treaties. There are no major maintenance projects planned for HEALY.

399' Polar Class Icebreakers (WAGB). Commissioned in 1976 and 1978, the Polar Class icebreakers were specifically designed for open-water icebreaking. They have reinforced hulls, special icebreaking bows, and a system that allows rapid shifting of ballast to increase the effectiveness of their icebreaking. The POLAR SEA and POLAR STAR serve in Arctic/Antarctic serving science and research as well as providing supplies to remote stations. The Polar class icebreakers are in poor condition following more than 25 years of service. As presented in the FY2006 budget, the Administration has proposed moving the budget authority to operate and maintain these vessels to the National Science Foundation (NSF). The Coast Guard will continue to work with the National Science Foundation to ensure that the nation's Polar Class icebreakers are available to complete their missions.

290' Inland Icebreaker (WAGB). The Coast Guard has one 290' inland icebreaker, the MACKINAW. Commissioned in 1944, the MACKINAW was designed and configured to perform its missions specifically on the Great Lakes where it keeps the shipping lanes open through as much of the winter as possible. The MACKINAW will be decommissioned in 2006 when the new MACKINAW is fully operational. Thus, no major maintenance projects are planned beyond the SSL level.

Training Ships (WIX). The 295' EAGLE was built in 1936 and commissioned in the Coast Guard in 1946. The EAGLE is a three-masted sailing Barque homeported at the CG Academy, New London, Connecticut. It is the only active (operational) commissioned sailing vessel in the U.S. maritime services and serves as a seagoing classroom. There are no major maintenance projects planned for EAGLE. The 180' GENTIAN is a seagoing buoy tender built in the 1940's, converted for use as a Caribbean training and support vessel. GENTIAN is in need of major maintenance; the Coast Guard is working with the Department of State and Southern Command to plan the future utilization of this unique asset and, if appropriate, program maintenance funding.

Unique Medium Endurance Cutters (WMEC). There are three unique medium endurance cutters homeported in Alaska that will be replaced with new Deepwater cutters. They are the 283' ALEX HALEY, built in 1968 and commissioned in 1999, the 230' STORIS commissioned in 1942, and the 213' ACUSHNET commissioned in 1946. These cutters perform a variety of missions, including enforcement of fishing regulations, search and rescue, and homeland security. As these ships are among the oldest in the Coast Guard fleet, they will be decommissioned over the next five to ten years. No major maintenance is planned during that time period beyond the SSL level.

225' Seagoing Buoy Tenders (WLB). Eleven 225' seagoing buoy tenders have been commissioned since 1996. The fleet size will eventually be 16. The 225' WLB represents the

latest in shipbuilding, propulsion, and ship control technology. The 225' buoy tenders service and position floating aids to navigation both inshore and offshore. No major maintenance projects are planned for this class of cutters beyond the SSL level.

180' Seagoing Buoy Tenders (WLB). Built between 1942 and 1944, only one 180-foot Seagoing Buoy Tender remains in the Coast Guard. The ACACIA will be decommissioned in 2006 when the new MACKINAW, which can conduct both icebreaking and buoy tending, is operational. No major maintenance projects are planned for ACACIA beyond the SSL level.

175' Coastal Buoy Tenders (WLM). The 14 175-foot Keeper Class Coastal Class Buoy Tenders were commissioned between 1996 and 2000. The 175' buoy tenders service and position floating aids to navigation both inshore and offshore. No major maintenance projects are planned for this class of cutters beyond the SSL level.

160', 100' and 75' Inland Construction Tenders (WLIC). There are four 160', one 100' and eight 75' Inland Construction Tenders that were commissioned between 1944 and 1976. The cutters construct and maintain both fixed and floating aids to navigation in inland areas. The 100' and 75' cutters push barges with integrated construction equipment. The barges are equipped with cranes and other ATON equipment to drive piles and work the smaller sized buoys. The 160' cutters are single units without barges. The Coast Guard is studying these assets as part of a system of assets approach to support/maintain coastal and inland waterway navigation systems.

140' Icebreaking Tugs (WTGB). The nine 140-foot Bay-class Cutters are used primarily for domestic ice breaking duties. They were commissioned between 1979 and 1988 and are stationed mainly in Northeast U.S. and Great Lakes. WTGBs use a low-pressure-air hull lubrication or bubbler system that forces air and water between the hull and ice. This system improves icebreaking capabilities by reducing resistance against the hull, reducing horsepower requirements. No major maintenance projects are planned for the icebreaking tugs beyond the SSL level.

100' and 65' Inland Buoy Tenders (WLI). The Coast Guard has two 100-foot Class Inland Buoy Tenders in service, one commissioned in 1944, one commissioned in 1963. The Coast Guard also has 3 65-foot Class Inland Buoy Tenders in service commissioned between 1946 and 1954. These cutters conduct aids to navigation maintenance in protected waters. The Coast Guard is studying these assets as part of a system of assets approach to support/maintain coastal and inland waterway navigation systems.

87' Coastal Patrol Boats (CPB). The 87' Coastal Patrol Boat replaced the aging 82 foot patrol boats starting in 1998. It employs a stern launched small boat, integrated bridge system, and other innovative design features. The Coastal Patrol Boat performs search and rescue, fisheries, homeland security, and nearly all other Coast Guard missions. When the CPB project is completed in 2006, there will be 66 CPB's in service. As these are new assets, there are no major maintenance projects planned for the CPB beyond the SSL level.

75' and 65' Inland River Buoy Tenders (WLR). The Coast Guard has twelve 75-foot Class River Buoy Tenders in service, commissioned between 1964 and 1990. The service also has six 65-foot Class River Buoy Tenders in service, commissioned between 1960 and 1962. These cutters push barges equipped with cranes which work Aids To Navigation (ATON). Some are equipped with "jetting" devices which are used to set and anchor buoys in rivers with sandy/muddy

bottoms. The Coast Guard is studying these assets as part of a system of assets approach to support/maintain coastal and inland waterway navigation systems.

65' Small Harbor Tug (WYTL). The eleven WYTLs were built between 1962 and 1967. They are employed only on the east coast, from Maine to Virginia to conduct ice breaking and other Coast Guard missions in major ports. No major maintenance projects are planned for these cutters beyond the SSL level.

Boat Maintenance.

The Coast Guard has approximately 1400 Motor Lifeboats, Motor Surf Boats, Large Utility Boats, Surf Rescue Boats, Port Security Boats, Aids to Navigation Boats, and a variety of smaller, non-standard boats including Rigid Inflatable Boats. Sizes range from 12 to 64 feet in length.

52' Motor Life Boat (MLB). Built in 1960 to replace wooden-hulled ships that carried the same names since the 1930's, these steel-hulled 52-foot motor life boats can withstand 100-mile an hour winds and sea swells up to 35 feet. These are the only Coast Guard vessels under 65 feet that have names. Motor lifeboats are the workhorses of rescue stations. Only four 52-footers are in service. They are built to withstand the most severe conditions at sea and are capable of affecting a rescue at sea even under the most difficult circumstances. They are self-bailing, self-righting, almost unsinkable, and have a long cruising radius. No major maintenance projects are planned for the 52' MLBs beyond the SSL level.

47' Motor Life Boat (MLB). The 47' motor lifeboat is designed as a first response rescue resource in high seas, surf & heavy weather environments. They are built to withstand the most severe conditions at sea and are capable of affecting a rescue at sea even under the most difficult circumstances. They are self-bailing, self-righting, almost unsinkable, and have a long cruising radius for their size. It is the replacement for the aging 44' MLB fleet. There are 117 operational MLBs, and the MLB fleet is being added to monthly under the acquisition program started in 1997. The total will be about 200. As these are new assets, no major maintenance projects are planned beyond the SSL level.

44' Motor Life Boat (MLB). Built by the Coast Guard Yard starting in 1961, the 44' motor lifeboat was for many years the Coast Guard's standard heavy weather & surf rescue response platform. They are built to withstand the most severe conditions at sea and are capable of affecting a rescue at sea even under the most difficult circumstances. They are self-bailing, self-righting, almost unsinkable, and have a long cruising radius for their size. There are (presently) 2 operational, being decreased as the 47' MLB replaces these hulls. As these are being replaced, there are no major maintenance projects planned beyond the SSL level.

41' Utility Boat (UTB). The 41' UTB is the general workhorse at multi-mission units. Brought into the service starting in 1973, the UTB is designed to operate under moderate weather and sea conditions where its speed and maneuverability make it an ideal platform for a variety of missions. There are presently 172 operational boats. The Coast Guard will be replacing all of the 41' utility boats under the Response Boat Medium (RB-M) project. Thus, no major maintenance projects are planned for the 41' UTBs beyond the SSL level.

21'-64' Aids to Navigation Boats. The Coast Guard operates a 164 boats ranging from 21 to 64 feet in length to service aids to navigation on inland waters. 103 of these boats have passed their

programmed service lives. The Coast Guard is studying these assets as part of a system of assets approach to support/maintain coastal and inland waterway navigation systems.

Response Boat Small (RB-HS). Built starting in 2002, the RB-HS was provided to Coast Guard stations and Maritime Safety and Security Teams to perform security missions. More than 100 boats have been placed in service. No major maintenance projects have been planned for the RB-HS beyond the SSL level.

Non-Standard Small Boats. The Coast Guard has approximately 400 non-standard small boats at units around the world. Many of these boats will be replaced under the Response Boat – Small and Response Boat – Medium projects currently underway. There are no major maintenance projects planned for non-standard small boats beyond the SSL level.

Cutter-Based Small Boats. The Coast Guard has 231 cutter-based small boats. Many of these boats will be replaced with the Long-range Interceptors and Short-Range Prosecutors under the Deepwater program. The remainder are replaced on an as-needed basis with operating funds. No major maintenance projects are planned for cutter-based boats beyond the SSL level.

Aircraft

Command and Control Aircraft. The Coast Guard owns two aircraft used for long- and medium-range command and control purposes. The C-37A is a Gulfstream G-V which is less than five years old. Most maintenance is accomplished under contract. No major maintenance projects are planned for this aircraft. The VC-4A, a Gulfstream G-I, is 40 years old and was recently grounded for safety of flight reasons. The Coast Guard anticipates removing the VC-4A from service within the next year, so no major maintenance projects are planned.

CONCLUSION

The Coast Guard employs a mature maintenance program to sustain, enhance and where appropriate, replace legacy assets. The Coast Guard uses its organic maintenance infrastructure to efficiently meet a portion of its needs, and uses contracts, including the Deepwater system, to provide these services when they exceed Coast Guard capabilities.

Maintenance of legacy assets has been made challenging by the increased operational tempo following 9-11 and the block obsolescence of many service assets. Innovative partnerships, risk-based prioritization of projects, and appropriate allocation of limited resources is necessary to preserve Coast Guard readiness for today and tomorrow.